

REMARKS

Claims 1-5 are all the claims pending in the application. Applicant cancels claim 6 by way of this Amendment.

Drawings

The Examiner is respectfully requested to acknowledge receipt and indicate approval of the drawings filed on February 8, 2002.

Claims

Claims 1-4 are rejected under 35 U.S.C. § 112, second paragraph. Applicant amends the claims to remove any ambiguities.

Claims 1, 2, and 5 are rejected under 35 U.S.C. § 102(b) as being anticipated by Hosomi (5,820,068).

Claims 3, 4 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hosomi (5,820,068) in view of Sato (6,502,784).

Analysis

Claim 1 is the only claim in independent form; therefore, the following discussion is initially directed to this independent claim.

This invention relates to a printer which can detect a near end of a paper roll by a single sensor wherein a detector is arranged at a position adaptable to both of a horizontal placement and a vertical placement of the printer. This invention also relates to a printer in which a gap (a

recess that does not project toward the roll paper side), through which a sheet of roll paper passes, is disposed at the detector of the near end sensor.

Hosomi discloses a printer in which a near end sensor and a paper end detecting means (detection lever 63) are rotatably disposed at a plurality of positions according to the placement state of the printer. The detection means has a detector that projects toward the roll lever and a projection. The detector is so disposed as to project in the vicinity of the respective guide portions that guide the roll paper when the diameter is reduced in diameter.

Sato discloses a roll paper residual amount detecting means that can adjust the position of a near end sensor by using a notch mechanism. The position of the sensors is adjusted so as to be adapted to the inner diameters of the paper tubes.

The detector of the present invention is distinguishable from Hosomi because the detector is disposed in correspondence with the plural installation states (horizontal and vertical). That is, each of the detectors of the present invention is disposed along the respective guide portion sides corresponding to the plural installation states, and the residual amount of sheet, when the sheet converges to one of the respective guide portions, is detected by a detector corresponding to that installation state.

On the contrary, the detectors of Hosomi are not disposed to correspond to a plurality of different installation states at any given time. Rather, the detectors are fixed in any one installation state and must be manually moved by the operator to correspond to a different installation state.

In Hosomi, the detector is disposed so as not to change the state of the switch even if the sheet oscillates and deviates from the position of the other detector in a process where the sheet is converged in one guide portion. That is, both of those two detectors in Hosomi are used in the same one installation state, and in order to make the structure of Hosomi correspond to the other installation state, the switch and the detectors must be moved, by the operator, to the vicinity of the guide portion corresponding to the other installation state. As discussed at col. 9, lines 39-44, the paper end detector 24 is oriented according to the vertical or horizontal installation of the printer.

On the other hand, according to the structure of the present invention, even if the installation state changes, no work is required on the operator's part to move the detectors and the switch. Accordingly, the present invention has a great advantage that the burden on the user is reduced as compared with the prior art, such as Hosomi.

In view of the foregoing, claim 1 is patentable.

The remaining rejections are directed to the dependent claims. These claims are patentable for at least the same reasons as claim 1, by virtue of their dependency therefrom.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 10/067,935

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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PATENT TRADEMARK OFFICE

Date: June 25, 2003

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Ellen R. Smith', written over a horizontal line.

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